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ABSTRACT

Provided are ten student exercises designed for orientations in the sciences, particularly biology, and for a class entitled Literature of Science, Technology, and Agriculture. An introduction outlines the use of 5 classroom exercises and 5 library exercises, and an appended section provides brief comments concerning the applicability of each of the exercises. (CS)

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LIBRARY AND CLASSROOM EXERCISES IN SCIENCE

by Eileen Pritchard

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Introduction

The exercises presented in this article were produced for orientations in the sciences, particularly biology, and for a one unit class entitled Literature of Science, Technology, and Agriculture. The majority of the students were assigned to do a literature search. In the one unit class, the students, when asked on a class evaluation how they rated certain aspects of their learning experience, rated exercises and literature searching assignments the highest out of the following categories: literature searching assignments, lectures, exercises, discussions, text assignments, and other sources. Classroom exercises for the use of scientific tools have been particularly popular in these classes. The exercises and tools (usually unbound issues) are given to the students during the class period.[1] Most exercises in the classroom are begun about 10 minutes before the class ends, allowing the students time to ask questions and to finish at their leisure.

Exercises done in the library without supervision are the more common type used in library instruction. Five of the ten exercises given here are for use in the library with no supervision. Copying can be a problem with the library exercise; so these were designed to have some answers which would not be the same for each student. (The one exception is the Zoological Record Exercise in which each blank has only one correct answer.)

[1]Pritchard, Eileen, "Teaching Science Citation Index for a Library orientation," Journal Of Technical Writing and Communication, 9:297-301, 1979.

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ABSTRACTS AND INDEXES AND THEIR EXERCISES

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BIBLIOGRAPHY OF AGRICULTURE EXERCISE

1. Find an unbound issue and give the volume_____, issue _____, and date_____.

2. Take the unbound issue and find a subject in the SUBJECT INDEX. List the following:

   a. Subject in bold letters_____

   b. Subject phrase_____

   _____

   c. B. of A. identification number_____

3. Turn to the MAIN ENTRY SECTION and record the following:

   a. B. of A. identification number_____

   b. Title of article_____

   c. Language, if listed_____

   d. Author_____

   If a journal, (see page "iv" of B. of A. if you need help identifying captions.)

   e. Journal title_____

   f. Volume_____

   g. Pages_____

   h. Date_____

   If an experiment station,

   i. Experiment station or extension service_____

   _____

   _____

   j. Numbers_____

   k. Date_____

4. Find the GEOGRAPHIC INDEX and record a state or county and a B. of A. identification number_____

   _____

5. Find the CORPORATE AUTHOR INDEX and list a corporate author and a B. of A. identification number_____

_____

6. Find the PERSONAL AUTHOR INDEX and list a name from the "A's" and the B. of A. identification number_____

_____

EXERCISE IN THE USE OF THE GENERIC INDEX IN BIOLOGICAL ABSTRACTS AND BIORESEARCH INDEX

1. Find the Generic Index (see tabing for location of index when using an unbound volume)

2. Find and record the following from the Generic Index:

   a. Scientific name (genus and species) _____

   b. Abbreviation following scientific name _____

   c. Abstract number _____

3. Find the "Explanation of Abbreviations Used in the Generic Index" (found just before the Generic Index)

   Record the explanation of the abbreviation you have used above ___

   _____

4. Look for the abstract or citation number in the bibliography section (in front of volume in the unbounds).

   Record the following for a journal:

   a. Abstract or citation number _____

   b. Author _____

   c. Address of author (if using Biological Abstracts) _____

   _____

   d. Title of article _____

   _____

   e. Journal _____

   f. Volume _____ Issue _____ Pages _____ Year _____

   Record the following for a symposium:

   a. Abstract or citation number _____

   b. Author or editor _____

   c. Symposium title _____

   d. Address of publisher _____

   e. Publisher _____

   f. Date of publication _____

g. Author (if different from above) _____

_____

h. Title of article or chapter _____

_____

i. Pages of article _____

EXERCISE IN THE USE OF ZOOLOGICAL RECORD

A. Using the Subject Index

1. Find the table of contents and in it the subject index.

2. List from the table of contents

   a. Subject _____

   b. page of subject _____

3. Turn to the page and find the subject and list

   a. genus _____

   b. author (capital letters) _____

4. Find the author in the author index (in the front of the section). List the following:

   a. Author _____

   b. Title _____

   c. Source _____

   d. Volume if listed _____

   e. Pages _____ Year (at top of page) _____

5. List the steps (indexes) to find an article

   a. Step 1. _____

   b. Step 2. _____

_____

B. Using the Systematic Index

1. Find the table of contents and in it the systematic index.

2. List from the table of contents

   a. the taxonomic group _____

   b. the page _____

3. Turn to the page and locate a scientific name (genus) and list the

   a. genus _____

   b. author (capital letters) _____

4. Find the author in the Author Index and list the

   a. Author _____

   b. Title _____

   c. Source _____

   d. Volume if given _____

   e. Pages _____

   f. Year (at top of page) _____

5. List the steps (indexes) to find an article

   a. Step 1. _____

   b. Step 2. _____

ZOOLOGICAL RECORD EXERCISE

1. Equus is the genus of the horse. What page is it listed on the "Index to Genera" for 1972 Zoological Record, Volume 109, Section 19? _____

2. Families of organisms often end in "dae". What is the family of the horse? _____

3. The order of the horse family is _____
(See the systematic category which includes Paleotheridae, Equidae, etc.).

4. What index is the above found in (see top of page)? _____
_____

5. If you were interested in the zebra, Equus zebra, under "parental care of the young" who is the author of the article of 1972? _____
_____

6. Find the author in the Author Index in the front of Section 19. What is the title of the paper? _____
_____
Is the paper in English? _____

7. Name the publication it is in. _____,
the volume _____, the issue _____,
the pages _____, the year (at top of page) _____.

8. Each section of Zoological Record has a series of indexes in the front of the section. Name the indexes that are in the front of Section 19 (Mammalia).

1. _____
2. _____
3. _____
4. _____
5. _____

9. In the "Detailed Subject Index" what page is "parental care of young" listed on? _____

10. What subheading in the subject index is Equus listed under? _____

_____

11. Biological Abstracts and Bibliography of Agriculture use a number in the subject index to find the full citation of an article. What replaces this number in Zoological Record? _____

INDEX MEDICUS EXERCISE

1. Find a subject heading in the subject section. List the heading.

   _____

   List the subdivision of that heading, if any._____

   _____

2. Find an example of an article in English (if no brackets around title and no notation of language is present, then the article is in English).

   List the following for a journal:

   Title of article:_____

   First author:_____

   Journal title:_____

   Volume_____ Issue_____ Pages_____

   Date_____

3. Find a foreign language article and list the language._____

   _____. Are the foreign language articles before or after the English articles under a given subject?_____

4. Find the same foreign language article in the author section. List additional authors, if any._____

   _____. Is the title of the article in English?___

5. Turn to the subject section of the Bibliography of Medical Reviews and find a subject. List the subject._____

   List the author._____

   List the number of references given for one review article._____

6. Find the author in the author section of the Bibliography of Medical Reviews._____

7. How does a review article differ from an original research article?

CHEMICAL ABSTRACTS EXERCISE

This exercise is to help you look at some of the indexes of Chemical Abstracts. In looking for the indexes look for those volumes with green tape on the spine. The abstract bound volumes lack the green tape.

A. Find an unbound issue (one with abstracts in it) and answer the following questions.

1. List the indexes within the unbound issue.

a. _____

b. _____

c. _____

d. _____

2. Find a subject in the index of the unbound issue. List the subject. _____

What is the abstract number _____

and the full citation _____

_____

_____

_____

3. How often do the unbound issues come out? _____

B. Find the Index Guide which is Volume 76 - 85 (January-June 1972).

1. Look up the following search terms:

a. "cider" - list a "see" reference _____

b. "oyster" or "clouds" - list the "see also" reference

_____

c. "saccharin" - list the "see" reference in full

_____

2. There are two indexes to look in to furnish abstract numbers leading to articles, itc. The indexes are the Chemical Substance Index and the General Subject Index. Which of the indexes would you go to find the listings in the above blanks.

a. _____

b. _____

c. _____

C. Find an index after 1976 and answer the questions below.

1. During these years what period of time does one "volume" cover? Note the volume number on the spine of the books: _____

2. In the volume you listed, list a subject and its abstract number from the General Subject Index: _____

_____

3. After finding a subject and an abstract number where would you go to find the full citation? _____

What volume would the citation be in? _____
It is not necessary to list the citation.

4. Locate the Chemical Substance Index of the above volume you listed. What instruction is listed in the upper right corner of the page on the right? _____

_____

5. If you were looking up a subject, in what order would you use the following indexes: Abstracts, General Subject Index, Index Guide?

_____

6. If you were looking up a chemical substance, what order would you use the following indexes: Abstracts, Index Guide, Chemical Substance Index? _____

D. Find the Formula Index in the same volume and year as you used in "C". Find the formula "$C_6H_{12}O_6$" (which is a sugar—at least in many cases) and list a chemical name with the above formula from the above index _____

_____,

the registry number (the number in brackets) _____,

and the abstract number _____.

E. Find index volumes 76-85.
1. How may years does this series of indexes cover? _____
2. What would be the advantage of using these indexes rather than an index from a single volume? _____

CYCLING EXERCISE FOR SCIENCE CITATION INDEX

1. Find a 1972, 1973, 1974, 1975, or 1976 Citation Index and look up the following Book:

   Frisch, K. von. 1967. The dance language and orientation of bees. Harvard University Press, Cambridge, Massachusetts.

   List the year of the Citation Index you are using. _____

2. List what is included for this citation in the Citation Index for the above cited author and his book.

   Cited Author (see Frisch, K. V.) _____ Year _____

   Title of book _____

3. Choose a citation listed under the cited author and his book from one of the following journals and list information asked for.

Citing Author	Journal	Volume	Page	Year
_____	American Scientist	____	____	____
_____	American Zoologist	____	____	____
_____	Animal Behaviour	____	____	____
_____	Behaviour	____	____	____
_____	Biological Bulletin	____	____	____
_____	Journal of Economic Entomology	____	____	____
_____	Journal of Experimental Biology	____	____	____
_____	Journal of Experimental Zoology	____	____	____
_____	Physiological Entomology	____	____	____
_____	Quarterly Review of Biology	____	____	____

4. Find the citing author in the Source Index and list the following:

   Citing author _____

   Title of article _____

Journal _____ Volume___ Issue ____ Pages ___ Year ____

Number of references _____

5. List the journal call number _____

6. Find the citing author in the journal of the shelf and find the "literature cited." Select an entry and list the following:

Author _____ Year _____

Title of article _____

_____

Journal _____ Volume _____ Year _____

7. Find the author from the "literature cited" in the Citation Index. (Look in the most recent year first.) List the following:

New Cited author _____

Journal _____ Volume ___ Page _____ Year _____

8. Record the following for the new citing author:

New Citing Author _____

Journal _____ Volume _____

Page _____ Year _____

9. Find the new citing author in the Source Index and list the title of the article. _____

_____

10. Arrange the following in the order you used them: Source Index, Paper of citing author, Citation Index.

Step 1. _____

Step 2. _____

Step 3. _____

Step 4. _____

11. Does the Citation Index lead you forward or backward in time? _____

12. Does the "literature cited" of the paper of the citing author lead you forward or backward in time? _____

13. How pertinent were the articles you found?

14. Is this method of searching practical for a thorough search?

INDEX TO SCIENTIFIC REVIEWS EXERCISE

A. PROBLEM: How would you find review articles on endocrine regulation?

1. List the index you would first look in to find the above subject.

_____

2. Once you have found the subject, list the names of the authors who have published review articles on the subject. _____

_____

3. List the index you would use to find the full citation for either author listed above. _____

4. Write out the full citation, etc., for the above author.

Author_____, coauthors, if any_____

_____,

title of article_____

_____,

source title_____,

source volume_____ pages_____, year_____,

number of references_____,

address of senior author_____

_____

5. List where to find the full title of the source abbreviation given above._____

B. PROBLEM: How would you find review articles which cited the paper given below?

Wessells, Norman K. et al. 1971. Microfilaments in cellular and developmental processes. Science, 171:135-143.

1. List the name of the index you will use to find the cited author and his or her paper. _____

2. Once Wessells' paper has been found, list the following:

   The cited author_____,

   reference year_____, reference journal_____,

   reference journal volume_____, reference journal page _____.

   Also, find the citing author_____,

   citing authors journal_____,

   volume of citing author's journal_____,

   page of citing author's journal_____,

   year of citing author's journal_____.

3. List the name of the index you will use to find full citation of the citing author. _____

   _____.

4. Find the citing author_____,

   coauthors (if any)_____,

   title of citing author's article_____

   _____.

C. PROBLEM: How would you find who is active in publishing and the subject of the article published at the University of California at Los Angeles in the Biology Department?

1. Find the Corporate Index and record the following:

   Institution_____,

   Address_____,

   Author_____,

   Reference journal_____,

   Reference journal volume_____,Reference journal page_____,

   Reference journal year_____.

2. List the index that would give the full citation of the above author's work._____

3. Once you have found the author, list the title of the article.

   _____

   _____

CURRENT CONTENTS EXERCISE

A. Subject Approach-

1. Find the "Weekly Subject Index" in the Current Contents issue, and list a subject word included in the index. _____.
2. List the Current Contents page (number beneath the subject on the left), _____ and the journal page (number on the right), _____.
3. Turn to the Current Contents page and locate the article by looking down the column of page numbers of the journal table of contents. List author _____, title of article _____ _____, journal _____, journal volume _____, journal page _____, and journal year _____.
4. If you wish to know the author's address, turn to the "Author Address Directory" in the back of the issue.

B. Journal Table of Contents Approach-

1. Turn to the first page of Current Contents and find a journal title under the heading "in this issue". List the journal_____ and Current Contents page _____.
2. Turn to the Current Contents page and list a citation of your choice. Include the following: author _____, title of article _____ _____, journal _____ _____, journal volume _____, journal page _____, and journal year _____.

C. Author Approach-

1. Turn to the "Author Address Directory" at the back of the issue and find an author _____, then take down the Current Contents page number _____.

2. Turn to the page number and copy the title of the article _____ _____, journal _____ _____, journal volume _____, journal page _____, and year of the journal _____.

FINDING U.S. GOVERNMENT PUBLICATIONS

1. Find the index called Monthly Catalog of United States Government Publications. List the year you will use: _____

2. Look in the subject index of a bound volume. List the subject you will use _____

3. By using the entry number find the citation of the document and list:
   a. government agency _____
   b. title of document _____
   c. date of document _____
   d. depository document (has black dot) _____
      or non-depository document (no black dot) _____
      If the document is a depository, then our library may have it and you would use the G.P.O. Catalog Number or document number to locate the document.
      List the G.P.O. Cat. Number _____
      If the document is non-depository, then the entry number is used to locate the document and the document is micro-card.
      List the entry number _____

4. On what shelf is the document found if it is a depository document?

   _____

   What room is the non-depository document, which is on microcard, found?

   _____

COMMENTS

The following are some comments on individual exercises which may be helpful.

1. Bibliography of Agriculture Exercise: (see page 3) (classroom exercise) This is a good beginning exercise for the use of an abstract or index.

2. Exercise in the Use of the Generic Index in Biological Abstracts and Bioresearch Index: (see page 5) (classroom exercise) This exercise illustrates the use of the generic index which is used in finding references to organisms by their scientific or latin names.

3. Exercise in the use of Zoological Record: (see page 7) (classroom exercise) The approach to the use of Zoological Record is different from most indexes. The subject index is more readily understood; therefore, it is included before the section on the systematic index.

4. Zoological Record Exercise: (see page 9) (library exercise) This exercise is to be completed by the students individually; since it has specific answers from a specific issue of Zoological Record.

5. Index Medicus Exercise: (see page 11) (classroom exercise) This exercise is designed to reveal some of the points about Index Medicus which may be missed in a casual observation. The exercise also includes a section on the Bibliography of Medical Reviews.

6. Chemical Abstracts Exercise: (see page 13) (library exercise) Chemical Abstracts can be difficult to use by non-chemists. This exercise is a great help to non-chemistry students in understanding the use of this abstract.

7. Science Citation Index Exercise: (Can be found in the article entitled "Teaching Science Citation Index for a Library Orientation," by Eileen Pritchard in the Journal of Technical Writing and Commun-

ication, 9:297-301, 1979) (classroom exercise) This exercise is used more in my classes than any exercise printed here.

8. Cycling Exercise for Science Citation Index: (see page 15) (library exercise) Cycling is a sophisticated way of using Science Citation Index, but students report this is an easier exercise than the Chemical Abstracts Exercise.

9. Index to Scientific Reviews Exercise: (see page 18) (library exercise) This exercise should be done by those already familiar with the subject and citation approaches to Science Citation Index. Sections A and B are variations on the Science Citation Index Exercise. Section C is different, however.

10. Current Contents Exercise: (see page 21) (classroom exercise) Since Current Contents is so small and light in weight, it is very easy to provide one copy per student to complete this exercise. This exercise is used almost as extensively as the Science Citation Index Exercise in the classes I teach.

11. Finding U.S. Government Publications: (see page 23) (library exercise) This exercise is tailored to the needs of students in the Cal Poly Library, but may be useful as a model for an exercise for another library.